Commonwealth of Kentucky Division for Air Quality

PERMIT STATEMENT OF BASIS

Title V Proposed Permit V-00-015, Revision 2
CALGON CARBON CORPORATION
CATLETTSBURG, KENTUCKY 41129
February 23, 2004
REVIEWER: JOSHUA J. HIGGINS
Plant I.D. # 21-019-00014
Application Log # 55679 / 55758 / 56097

SOURCE DESCRIPTION:

Calgon Carbon Corporation operates a primary activated carbon and recycle carbon regeneration plant in Catlettsburg, Kentucky. Activated carbon is produced from high-grade bituminous coal. Coal is received and stored in silos, ground to fine powder, mixed with pitch, and pelletized to form a briquette. This briquette is crushed and screened and the carbon is baked to remove volatiles in kilns. After baking the carbon is 'activated' in furnaces. The activated carbon is then cooled and transferred to screening and packaging operations. The plant also produces several specialty products including acid washed carbon, fine carbon, and impregnated carbon products.

Fine carbon is produced using a roll mill and screens while the acid-washed carbon is produced by washing sized carbon with a hydrogen chloride solution. This process removes ash and iron making the carbon suitable for food-grade applications. Residual acid from the process is neutralized with soda ash and the carbon is dried in a direct-fired kiln.

The carbon regeneration plant received spent carbon from end-users of activated carbon and desorbs the adsorbed materials, thereby regenerating the carbon for reuse. This plant consists of spent carbon storage vessels, washers to remove sand, dewatering steps, and a nine-hearth reactivation furnace. The top two hearths of the furnace serve as an afterburner that discharges into a spray dryer scrubber. Sodium carbonate is used in the spray dryer to remove acidic gases, primarily hydrogen chloride and sulfur dioxide. Final particle collection is performed by a fabric filter.

CREDIBLE EVIDENCE:

This permit contains provisions which require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has not incorporated these provisions in its air quality regulations.

APPLICATION COMMENTS:

- I. Initial Issuance, V-00-015, Log # E983, F864, G494
- II. Minor Revision, V-00-015, Revision 1, Log # 55421
- III. Significant Revision & 502(b)10, V-00-015, Revision 2, Log # 55679 / 55758 / 56097

COMMENTS:

a. Types of control and efficiency:

There are numerous control devices at the Calgon facility. These can be broadly classified into the following categories:

- i. Cold sources these are mainly material handling sources and are typically controlled by a baghouse with an efficiency of 99%.
- ii. Hot sources this category includes the bakers and activators that are equipped with wet scrubbers for the control of particulate matter (85%) and sulfur dioxide (75%). Afterburners on each of the bakers reduce VOC emissions by 99% prior to discharge to the atmosphere.
- iii. Reactivation Furnace the reactivation furnace is equipped with a dry scrubber for sulfur dioxide emissions (85%), a baghouse for particulate emissions (99%), an afterburner and carbon adsorber for VOC emissions (98%).

b. Emission factors and their source:

A combination of AP-42 emission factors, material balance, and stack test data was used to estimate emissions, see application for details.

c. Applicable regulations:

The following regulations apply to this facility:

- i. 401 KAR 61:020, *Existing Process Operations*, applies to each affected facility that emits emissions of particulate matter and was constructed prior to July 2, 1975.
- ii. 401 KAR 59:010, *New Process Operations*, applies to each affected facility that emits emissions of particulate matter and was constructed after July 2, 1975.
- iii. 401 KAR 50:012, General Application, applies to each affected facility that emits emissions of volatile organic compounds (VOC). Boyd County was previously designated as non-attainment for ozone and major VOC sources in the county were required to apply control technology which is 'reasonable and available' (RACT) to reduce emissions of VOC.
- iv. 401 KAR 57:002, which incorporates by reference federal regulation 40 CFR 61 Subpart FF, *National emission standard for benzene waste operations*, applies to the Carbon Reactivation Process.

d. Anything unusual about the:

Emission point number and description -

With this permit action, the permittee is authorized to increase the maximum processing rates at the B-Line Bakers (EP# 11) and the B-Line Baker to Activator Elevator (EP# 13) to 7.8 tons per hour and 68,328 tons per year. Emissions are not expected to increase beyond currently permitted levels as a result of this processing rate increase. The permittee is required to perform stack tests on the B-Line Bakers (EP# 11) for particulate matter and sulfur dioxide and the B-Line Baker to Activator Elevators (EP# 13) for particulate matter upon completion of the processing rate increase. Regulations 59:010 and 61:020 respectively continue to apply to these facilities.

EMISSION AND OPERATING CAPS DESCRIPTION:

The following emission points that were permitted in the past are subject to federally-enforceable synthetic minor limits:

Emission Point	Description	Pollutant	Synthetic Minor Limit (tpy)
09	B-Line Coal & Pitch Preparation Area	PM/PM_{10}	3.29
11	B-Line Bakers	PM/PM_{10}	21.46
		SO_2	39.00
24	Package Boiler	PM/PM_{10}	0.3441 lb/mmBTU
25	Acid Wash Transfer & Packaging System	PM/PM_{10}	5.26
26	Acid Wash Process	PM/PM_{10}	7.88
29	D-Line Coal & Pitch Preparation Area	PM/PM_{10}	61.06
31	D-Line Bakers	SO_2	65.7
34	D-Line Activator Furnaces	PM/PM_{10}	65.7
		SO_2	65.7
37	E-Line Coal & Pitch Preparation Area	PM/PM_{10}	61.06
42	E-Line Activator Furnaces	PM/PM ₁₀	60.88
43	E-Line Packaging Operations	PM/PM_{10}	49.39
45	Reactivation Furnace	PM/PM ₁₀	7.01
		SO_2	21.04
		VOC	1.80
		NOx	26.90
50	Pulverizer Collection System	PM/PM ₁₀	35.95
52	Activated Carbon Fine Mesh Production	PM/PM ₁₀	12.42
53	Reactivation Process for Custom Product	PM/PM ₁₀	2.48

Each of the emission points listed above that is a source of particulate emissions is also subject to particulate matter standards under state 'process operations' regulations (401 KAR 59:010 for sources constructed after July 2, 1975 and 61:020 for sources constructed prior to July 2, 1975). These regulations prescribe hourly particulate matter limits based on the 'process weight rate'.

In some instances, when the emission points listed in the table above were permitted as synthetic minor sources, the annual synthetic minor limit was pro-rated to an hourly limit that supplanted the hourly limit prescribed by 59:010 or 61:020. In other instances, the synthetic minor limit was not pro-rated to an hourly standard.

only. In those instances where the synthetic minor limit was pro-rated to an hourly standard, the synthetic minor hourly limit has been replaced with the particulate matter limit prescribed by 59:010 or 61:020. This was done to ensure consistency within the Title V permit.

PUBLIC AND U.S. EPA REVIEW:

On June 8, 2000 the public notice on availability of the draft/proposed permit and supporting material for comments by persons affected by the plant was published in *The Daily Independent* in Ashland, Kentucky. The public comment period expired 30 days from the date of publication. During this time no comments were received from the general public.

Comments were received from Calgon Carbon Corporation on June 22, 2000. Attachment A to this section lists the comments received and the Division's response to each comment. Minor changes were made to the permit as a result of the comments, however, in no case were any emission standards, or any monitoring, recordkeeping or reporting requirements relaxed. Please see Attachment A for a detailed explanation of the changes made to the permit.

Since comments were received from the facility during the public comment period, the permit now being issued is a proposed permit. U.S. EPA has 45 days from the date of issuance of the proposed permit to comment on it. If no comments are received from U.S. EPA during this period, the proposed permit shall become the final permit.

ATTACHMENT A TO SECTION I

Response to Comments

Comments and Suggested Revisions on the Draft Title V Permit submitted by Jeff McKinney, Calgon Carbon Corporation.

1. On the third page of the Permit Application Summary Form, the table included under the heading "Emission and Operating Caps Description" incorrectly shows the pound per hour synthetic minor limits as ton per year limits for Emission Point 45, Reactivation Furnace.

Division's response: The Division concurs with the comment and has revised the application summary. In further review the Division determined that the Statement of Basis was also incorrect and revised it as well.

2. On page 2 of the Permit Statement of Basis, Comment d., EP #13, "b-Line Baker to Activator Elevator" is referenced as a separate emission point. EP #13 has been incorporated in to EP #11 as shown on Page 11 of the Draft Permit. Stack testing can not be performed separately for the elevator.

Division's response: The Division concurs with the comment and has revised the Statement of Basis.

3. On Page 2 of the Draft Permit, "Index of Emission Points Listed in Section B", EP #11 should include "D-Line Baker to Activator Elevator" as a referenced point.

Division's response: The Division believes that the source was referring to EP #31 not EP #11 based on the following comment. The Division concurs with the comment and has revised the "Index of Emission Points Listed in Section B" in the permit.

4. On Page 40 of the Draft Permit, the source listing for EP #31 should include "D-Line Baker to Activator Elevator."

Division's response: The Division concurs with the comment and has revised the permit.

5. On Page 72, 1.d., and Page 74, 2.l. and 2.m., these requirements as contained in Subpart FF, National Emission Standard for Benzene Waste Operations, are conditionally-applicable only. As per 40 CFR 61.342(a), an operator is exempt from these requirements when it is demonstrated that the total annual benzene quantity from facility waste does not exceed 10 megagrams per year. Although Calgon Carbon does not anticipate difficulty in complying with these requirements on a full-time basis, the requirements should not be considered enforceable on a full-time basis in terms of recordkeeping and reporting demonstrations. The following additional language is suggested for clarification, as shown in the modified Draft:

"In accordance with the provisions of 40 CFR 61.342(a), compliance with the Operating Limitations (1.d., 2.l., 2.m.) shall not be required when the permittee demonstrates that the total annual benzene quantity from facility waste is less than 10 megagrams per year (10 Mg/yr)."

Division's response: The Division concurs with the comment and has revised the permit as suggested by the source.

6. On Pages 105 and 106 of the Draft Permit, EP #13 is referenced as a separate emission point. EP #13 has been incorporated in to EP #11.

Division's response: The Division concurs with the comment and has revised the permit.

II. Minor revision, V-00-015, Revision 1, Log # 55421

COMMENTS ON LOG # 55421:

Calgon Carbon Corporation is applying to install a 27-mmBTU/hr natural gas fired boiler with low NO_x burners and flue gas recirculation. The installation of this boiler is needed to supplement steam generation in the plant. The additional steam generation capacity was necessitated by a malfunction in the plant soft water production system that allowed hard water to be conveyed to the existing permitted boilers. Calgon is installing the temporary boiler in anticipation of possible loss of steam generation capacity with the impending failure and subsequent repair of the existing boilers.

Summary of changes to the permit:

• This permit is being revised using the new permit template in order to update the "boiler plate language" in sections A, C, D, E, F, and G. As a result, one reference to paragraph **F. 5** for EP 45 was updated to reference paragraph **F. 7**.

• Section B, (64) (M-07) Temporary Package Boiler.

All limitations, requirements, and conditions associated with the addition of the boiler were added to Section B of the permit as Emission Point 64.

Applicable Regulations:

401 KAR 59:015, New Indirect Heat Exchangers applies to the operation of the package boiler.

PUBLIC AND U.S. EPA REVIEW:

Public review is not required for a minor revision.

The proposed minor revision and all supporting material were made available to U.S. EPA, Region IV for review. The 45-day EPA review period began on January 29, 2003. The proposed permit shall become the final permit unless the U.S. EPA files an objection pursuant to Regulation 401 KAR 52:100, Section 10.

COMMENTS ON LOG # 55679 / 55758:

Calgon Carbon Corporation, Big Sandy Facility is located in a portion of Boyd County that has been designated SO₂ non-attainment, however the Division has been trying to re-designate that portion of the county as attainment. This facility was identified in an U.S. EPA, Region IV emissions modeling analysis as one of the most significant SO₂ emitters in the area. Calgon, through the use of Trinity Consultants, updated the American Meteorological Society (AMS) / U.S. EPA Regulatory Model (AERMOD) with Plume Rise Model Enhancements (PRIME) analysis in order to address proposed changes to their operations at the Big Sandy Facility and demonstrate an SO₂ attainment status for Boyd County. This revision incorporates the modeled parameters into the Title V permit.

Installing wet scrubbers on EP 14 and 21 was included among the modeled parameters, and new application forms to install the scrubbers were included as additional information to application Log # 55679. This scrubber information supercedes the original application for installing scrubbers on EP 14 and 21 received December 13, 2001 (Log # 54342). The old application was combined with Log # 55679.

This revision also incorporates two requested 502(b)10 changes to increase the permitted operating rates at emission point (EP) 31 (Log # 56097) and EP 53 (Log #55758). The applications contained calculations, based on stack sampling emission rates from September 2003 and January 2001, respectively, that indicated that the source would still be below the allowable emission rates at the increased operating rates. Since DAQ personnel witnessed both stack tests, and the source was operating at its maximum permitted capacity at the time of the test, the source's calculations were accepted.

Additionally, this revision includes changes to the particulate matter emission limits, the mass and opacity compliance demonstration methods, and the monitoring, recordkeeping, and reporting requirements for many emission points subject to either 401 KAR 59:010 or 401 KAR 61:020. These changes affected emission points 08, 09, 11, 14, 15, 21, 22, 25, 26, 27, 29, 31, 34, 35, 37, 39, 42, 43, 44, 45, 48, 49, 50, 51, 52, and 53. The actual changes at each point are listed below.

Also, due to recent typographical errors included with notices from the source to process spent carbon that contain chloride in concentrations greater than 4.0% by weight, Specific Recordkeeping Requirement 5.n.3.(iii) for EP 45 was revised. The revision will require the source to include calculations with their notice to process the carbon that will demonstrate that HCl emissions will not exceed 2.55 lb/hr. By doing the calculation, the source will be double-checking their own work before submitting the notice.

Lastly, any typographical or formatting errors found were corrected.

Summary of changes to the permit:

Section B, EP 08 (A-10) A-Line Packaging Operations.

• The particulate matter emission limit in paragraph 2.a. was changed from 6.52 lb/hr to E = 4.10P ^{0.67}, which is the process weight-rate equation from 401 KAR 61:020. It appears as though the fixed pound-per-hour limits used in the previous versions of the permit were derived from entering the maximum ton-per-hour operating limit into the equation. However, use of the equation, instead of the fixed pound-per-hour limit, as the emission limit will provide a more accurate emission limit for periods of operation below the maximum ton-per-hour operating limit.

- Compliance Demonstration Method 2.a. The Mass Emission Standard equation was revised to use the hourly throughput rate determined in operating limitation 1.d. This value is also the value of "P" in the process weight-rate equation.
- Monitoring requirement 4.d. was revised to specify that the weekly visual inspection of the control device shall occur during operation of the associated equipment.
- Recordkeeping requirement 5.c. was revised to require a daily Method 9 reading during packaging operations if there is a malfunction of the control device and visible emissions.
- The specific reporting requirements were added.

Section B, EP 09 (B-0) B-Line Coal & Pitch Preparation Area.

- The particulate matter emission limit in paragraph 2.a. was changed from 14.02 lb/hr to E = $3.59P^{0.62}$, which is the process weight-rate equation from 401 KAR 59:010.
- Compliance Demonstration Method 2.a. The Mass Emission Standard equation was revised as mentioned above for EP 08.
- The monitoring, recordkeeping, and reporting requirements were revised as mentioned above for EP 08.

Section B, EP 11 (B-02) B-Line Bakers.

- **Modeled revision**: This point was included in the list of proposed changes to source operations, however the modeled source emission rate matches the current SO₂ emission limit (See Table 1 of the modeling portion of the application). No permit change required.
- The particulate matter emission limit in paragraph 2.a. was changed from 12.83 lb/hr to $E = 3.59P^{0.62}$, which is the process weight-rate equation from 401 KAR 59:010.
- Compliance Demonstration Method 2.a. The Mass Emission Standard equation was revised as mentioned above for EP 08.
- The monitoring, recordkeeping, and reporting requirements were revised as mentioned above for EP 08.

Section B, EP 12 (B-08, 09) B-Line Baker Heater.

- Modeled revision: Reference to 401 KAR 53:005 was added in order to enforce NAAQS.
- **Modeled revision**: The emission limitation in paragraph 2.b. was changed from 1.33 lb/mmBTU to 0.0853 lb/mmBTU.

Section B, EP 14 (B-04) B-Line Activator.

- **Modeled revision**: The scrubber for PM/SO₂ was added to the control description.
- **Modeled revision**: Reference to 401 KAR 53:005 was added in order to enforce NAAQS and the use of the scrubber.
- The divisor in the hourly throughput rate equation in Compliance Demonstration Method 1.d. was corrected from referencing hours of "loading" to hours of "operation."
- The particulate matter emission limit in paragraph 2.a. was changed from 5.38 lb/hr to E = 4.10P 0.67, which is the process weight-rate equation from 401 KAR 61:020.
- **Modeled revision**: The following emission limitation in paragraph 2.c. was added: "Emissions of SO₂ from the B-Line Activator shall not exceed 2.88 lbs/hr and 12.6 tons during any consecutive 12 months [401 KAR 53:005, and Permit V-00-015 (Revision 2)]."
- **Modeled revision**: Compliance Demonstration Method 2.a. The Mass Emission Standard equation was revised to include SO₂.

Section B, EP 14 (B-04) B-Line Activator. (continued)

- Compliance Demonstration Method 2.a. The Mass Emission Standard equation was revised as mentioned above for EP 08.
- Compliance Demonstration Method 2.b. The opacity compliance demonstration was revised from "No compliance demonstration is necessary" to none being necessary during normal operation of the control device, but that during control device malfunctions compliance is determined through maintaining visual emissions records.
- **Modeled revision**: Monitoring, recordkeeping, reporting, and specific control equipment operating conditions were updated to reflect the requirements of adding the wet scrubber.

Section B, EP 15 (B-06) B-Line Packaging Operations.

- The particulate matter emission limit in paragraph 2.a. was changed from 6.52 lb/hr to E = 4.10P 0.67, which is the process weight-rate equation from 401 KAR 61:020.
- Compliance Demonstration Method 2.a. The Mass Emission Standard equation was revised as mentioned above for EP 08.
- The monitoring, recordkeeping, and reporting requirements were revised as mentioned above for EP 08.
- Specific recordkeeping requirement 5.f. was added.

Section B, EP 21 (C-04, 05) C-Line Activators.

- **Modeled revision**: The scrubber for PM/SO₂ was added to the control description.
- **Modeled revision**: Reference to 401 KAR 53:005 was added in order to enforce NAAQS and the use of the scrubber.
- The divisor in the hourly throughput rate equation in Compliance Demonstration Method 1.d. was corrected from referencing hours of "loading" to hours of "operation."
- The particulate matter emission limit in paragraph 2.a. was changed from 6.52 lb/hr to E = 4.10P $^{0.67}$, which is the process weight-rate equation from 401 KAR 61:020.
- **Modeled revision**: The following emission limitation in paragraph 2.c. was added: "Emissions of sulfur dioxide from both C-Line Activators combined shall not exceed 7.72 lbs/hr and 33.8 tons during any consecutive 12 months [401 KAR 53:005, and Permit V-00-015 (Revision 2)]."
- **Modeled revision**: Compliance Demonstration Method 2.a. The Mass Emission Standard equation was revised to include SO₂.
- Compliance Demonstration Method 2.a. The Mass Emission Standard equation was revised as mentioned above for EP 08.
- Compliance Demonstration Method 2.b. The opacity compliance demonstration was revised as mentioned above for EP 14.
- **Modeled revision**: Monitoring, recordkeeping, and specific control equipment operating conditions were updated to reflect the requirements of adding the wet scrubber.

Section B, EP 22 (C-06) C-Line Packaging Operations.

- The particulate matter emission limit in paragraph 2.a. was changed from 10.38 lb/hr to $E = 4.10P^{0.67}$, which is the process weight-rate equation from 401 KAR 61:020.
- Compliance Demonstration Method 2.a. The Mass Emission Standard equation was revised as mentioned above for EP 08.
- The monitoring, recordkeeping, and reporting requirements were revised as mentioned above for EP 08
- Specific recordkeeping requirement 5.f. was added.

Section B, EP 24 (M-02) Package Boiler.

• Modeled revision: Reference to 401 KAR 53:005 was added in order to enforce NAAQS.

- **Modeled revision**: The emission limitation in paragraph 2.b. was changed from 1.33 lb/mmBTU to 0.0861 lb/mmBTU.
- **Modeled revision**: The compliance demonstration method was updated to include periods of #2 fuel oil combustion.

Section B, EP 25 (M-03) Acid Wash Transfer & Packaging System.

- The particulate matter emission limit in paragraph 2.a. was changed from 2.34 lb/hr to E = 3.59P 0.62, which is the process weight-rate equation from 401 KAR 59:010.
- Compliance Demonstration Method 2.a. The Mass Emission Standard equation was revised to use the process weight rate in tons/hr of material processed at the emission point. This value is also the value of "P" in the process weight-rate equation.
- The monitoring, recordkeeping, and reporting requirements were revised as mentioned above for EP 08.

Section B, EP 26 (M-04) Acid Wash Process.

- **Modeled revision**: Reference to 401 KAR 53:005 was added in order to enforce NAAQS.
- The particulate matter emission limit in paragraph 2.a. was changed from 8.48 lb/hr to E = 3.59P 0.62, which is the process weight-rate equation from 401 KAR 59:010.
- **Modeled revision**: The following emission limitation in paragraph 2.b. was added: "Emissions of SO₂ from the Acid Wash Process shall not exceed 1.278 lb/hr and 5.598 tons during any consecutive 12 months [401 KAR 53:005, and Permit V-00-015 (Revision 2)]."
- **Modeled revision**: Compliance Demonstration Method 2.a. The Mass Emission Standard equation was revised to include SO₂.
- Compliance Demonstration Method 2.a. The Mass Emission Standard equation was revised as mentioned above for EP 08.
- The monitoring, recordkeeping, and reporting requirements were revised as mentioned above for EP 08.

Section B, EP 27 (--) Lime Storage Silo.

- The particulate matter emission limit in paragraph 2.a. was changed from 2.34 lb/hr to E = 3.59P 0.62, which is the process weight-rate equation from 401 KAR 59:010.
- Compliance Demonstration Method 2.a. The Mass Emission Standard equation was revised as mentioned above for EP 25.
- Compliance Demonstration Method 2.b. The opacity compliance demonstration was revised as mentioned above for EP 14.
- Monitoring requirement 4.c. was added.
- Recordkeeping requirements 5.c. and 5.f. were added.
- The specific reporting requirements were added.

Section B, EP 29 (D-0) D-Line Coal & Pitch Preparation Area.

• The particulate matter emission limit in paragraph 2.a. was changed from 17.87 lb/hr to E =

- 4.10P ^{0.67}, which is the process weight-rate equation from 401 KAR 61:020.
- Compliance Demonstration Method 2.a. The Mass Emission Standard equation was revised as mentioned above for EP 08.
- The monitoring, recordkeeping, and reporting requirements were revised as mentioned above for EP 08.

Section B, EP 31 (D-05) D-Line Bakers.

- **Modeled revision**: This point was included in the list of proposed changes to source operations, however the modeled source emission rate matches the current SO₂ emission limit (See Table 1 of the modeling portion of the application). No permit change required.
- **502(B)10**: The operating limitation on the total weight of coal processed through the D-Line Bakers was revised from 7.8 tons per hour to 9.24 tons per hour. There was no change to the annual throughput limit.
- The particulate matter emission limit in paragraph 2.a. was changed from 16.24 lb/hr to $E = 4.10P^{0.67}$, which is the process weight-rate equation from 401 KAR 61:020.
- Compliance Demonstration Method 2.a. The Mass Emission Standard equation was revised as mentioned above for EP 08.
- Monitoring requirement 4.d. was added.
- Recordkeeping requirement 5.d. was revised as mentioned above for EP 08, paragraph 5.c, .
- The specific reporting requirements were added.

Section B, EP 32 (D-12, 13) <u>D-Line Baker Heaters.</u>

- Modeled revision: Reference to 401 KAR 53:005 was added in order to enforce NAAQS.
- **Modeled revision**: The emission limitation in paragraph 2.b. was changed from 1.33 lb/mmBTU to 0.0853 lb/mmBTU.

Section B, EP 34 (D-0, 09) <u>D-Line Activators.</u>

- **Modeled revision**: This point was included in the list of proposed changes to source operations, however the modeled source emission rate matches the current SO₂ emission limit (See Table 1 of the modeling portion of the application). No permit change required.
- The divisor in the hourly throughput rate equation in Compliance Demonstration Method 1.d. was corrected from referencing hours of "loading" to hours of "operation."
- The particulate matter emission limit in paragraph 2.a. was changed from 16.24 lb/hr to $E = 4.10P^{0.67}$, which is the process weight-rate equation from 401 KAR 61:020.
- Compliance Demonstration Method 2.a. The Mass Emission Standard equation was revised as mentioned above for EP 08.
- Monitoring requirement 4.d. was added.
- Recordkeeping requirement 5.d. was revised as mentioned above for EP 08, paragraph 5.c.
- The specific reporting requirements were added.

Section B, EP 35 (D-10) <u>D-Line Packaging Operations.</u>

- The particulate matter emission limit in paragraph 2.a. was changed from 12.0 lb/hr to E = 4.10P 0.67, which is the process weight-rate equation from 401 KAR 61:020.
- Compliance Demonstration Method 2.a. The Mass Emission Standard equation was revised as mentioned above for EP 08.

Section B, EP 35 (D-10) <u>D-Line Packaging Operations.</u> (continued)

• The monitoring, recordkeeping, and reporting requirements were revised as mentioned above for

EP 08.

• Specific recordkeeping requirement 5.f. was added.

Section B, EP 37 (E-01) E-Line Coal & Pitch Preparation Area.

- The particulate matter emission limit in paragraph 2.a. was changed from 17.87 lb/hr to $E = 4.10P^{0.67}$, which is the process weight-rate equation from 401 KAR 61:020.
- Compliance Demonstration Method 2.a. The Mass Emission Standard equation was revised as mentioned above for EP 08.
- The monitoring, recordkeeping, and reporting requirements were revised as mentioned above for EP 08.

Section B, EP 39 (E-02) E-Line Baker Heaters.

- Modeled revision: Reference to 401 KAR 53:005 was added in order to enforce NAAQS.
- The particulate matter emission limit in paragraph 2.a. was changed from 12.83 lb/hr to $E = 3.59P^{0.62}$, which is the process weight-rate equation from 401 KAR 59:010.
- **Modeled revision**: The emission limitation in paragraph 2.c. was changed from 4.62 lb/mmBTU to 15.0 lb/hr, and from 333.0 tons during any consecutive 12 months to 65.7 tons.
- Compliance Demonstration Method 2.a. The Mass Emission Standard equation was revised as mentioned above for EP 08.
- Monitoring requirement 4.d. was added.
- Recordkeeping requirement 5.d. was revised as mentioned above for EP 08, paragraph 5.c.
- The specific reporting requirements were added.

Section B, EP 40 (E-09, 10) E-Line Baker Heaters.

- Modeled revision: Reference to 401 KAR 53:005 was added in order to enforce NAAQS.
- **Modeled revision**: The description of the total heat input of this emission point was reduced from 20 mmBTU/hr to 16.7 mmBTU/hr as the result of removal of five #2 fuel oil fired burners.
- **Modeled revision**: In order to enforce the removal of the five oil fired burners, the following statement was added to paragraph 1., operating limitations:

The heat-input rating will be accomplished through the removal of five (5) #2 fuel oil fired burners. This results in the permitted operation of twenty-one (21) oil fired burners and four (4) natural gas fired burners for the E-Line Baker Heaters [401 KAR 53:005, and Permit V-00-015 (Revision 2)].

Modeled revision: The emission limitation in paragraph 2.b. was changed from 1.33 lb/mmBTU to 0.477 lb/mmBTU.

Section B, EP 42 (E-05, 06) E-Line Activators.

- Modeled revision: Reference to 401 KAR 53:005 was added in order to enforce NAAQS.
- The divisor in the hourly throughput rate equation in Compliance Demonstration Method 1.d. was corrected from referencing hours of "loading" to hours of "operation."
- The particulate matter emission limit in paragraph 2.a. was changed from 8.55 lb/hr to E = 3.59P 0.62, which is the process weight-rate equation from 401 KAR 59:010.

Section B, EP 42 (E-05, 06) E-Line Activators. (continued)

• **Modeled revision**: The following emission limitation in paragraph 2.c. was added: "Emissions

- of SO₂ from <u>each</u> E-Line Activator shall not exceed 7.5 lb/hr and 32.85 tons during any consecutive 12 months [401 KAR 53:005, and Permit V-00-015 (Revision 2)]."
- **Modeled revision**: Compliance Demonstration Method 2.a. The Mass Emission Standard equation was revised to include SO₂.

Section B, EP 42 (E-05, 06) E-Line Activators. (continued)

- Compliance Demonstration Method 2.a. The Mass Emission Standard equation was revised as mentioned above for EP 08.
- Compliance Demonstration Method 2.b. The opacity compliance demonstration was revised as mentioned above for EP 14.
- Monitoring requirement 4.d. was added.
- Recordkeeping requirement 5.d. was revised as mentioned above for EP 08 paragraph 5.c.
- The specific reporting requirements were added.

Section B, EP 43 (E-07) E-Line Packaging Operations.

- The particulate matter emission limit in paragraph 2.a. was changed from 12.05 lb/hr to $E = 4.10P^{0.67}$, which is the process weight-rate equation from 401 KAR 61:020.
- Compliance Demonstration Method 2.a. The Mass Emission Standard equation was revised as mentioned above for EP 08.
- The monitoring, recordkeeping, and reporting requirements were revised as mentioned above for EP 08.
- Specific recordkeeping requirement 5.f. was added.

Section B, EP 44 (M-06) D & E Bulk Loadout System.

- The particulate matter emission limit in paragraph 2.a. was changed from 4.72 lb/hr to E = 4.10P 0.67, which is the process weight-rate equation from 401 KAR 61:020.
- Compliance Demonstration Method 2.a. The Mass Emission Standard equation was revised as mentioned above for EP 08.
- The monitoring, recordkeeping, and reporting requirements were revised as mentioned above for EP 08.

Section B, EP 45 (CAS-01) Reactivation Furnace.

- **Modeled revision**: This point was included in the list of proposed changes to source operations, however the modeled source emission rate matches the current SO₂ emission limit (See Table 1 of the modeling portion of the application). No permit change to SO₂ emission limit required.
- The particulate matter emission limit in paragraph 2.a. was changed from 7.01 lb/hr to E = 4.10P ^{0.67}, which is the process weight-rate equation from 401 KAR 61:020. However, in no case shall particulate emissions exceed 7.01 lb/hr because it is a Synthetic Minor Limit carried over from Permit O-94-020 (Revision 1).
- Compliance Demonstration Method 2.a. The Mass Emission Standard equation was revised as mentioned above for EP 08.
- Monitoring requirement 4.e. was revised as mentioned above for EP 08, paragraph 4.d.
- Recordkeeping requirement 5.e. was revised as mentioned above for EP 08, paragraph 5.c.

Section B, EP 45 (CAS-01) Reactivation Furnace. (continued)

• Specific Recordkeeping Requirement 5.n.3.(iii) was revised slightly to also include calculations

- demonstrating that the HCl emissions from processing spent carbon with a chloride content of greater than 4.0% by weight will not exceed 2.55 lb/hr.
- The specific reporting requirements were revised to include a report of an exceedance of any emission limit, not just the SO₂ limit, and to report the occurrence, duration, cause, and any corrective action taken for each incident when operations are in progress but the associated control device is not.

Section B, EP 48 (CAS-06) Waste Disposal Silo.

- The particulate matter emission limit in paragraph 2.a. was changed from 8.56 lb/hr to $E = 4.10P^{0.67}$, which is the process weight-rate equation from 401 KAR 61:020.
- Compliance Demonstration Method 2.a. The Mass Emission Standard equation was revised as mentioned above for EP 08.
- The monitoring, recordkeeping, and reporting requirements were revised as mentioned above for EP 08.
- Specific recordkeeping requirement 5.f. was added.

Section B, EP 49 (CAS-07) Soda Ash Storage Silo.

- The particulate matter emission limit in paragraph 2.a. was changed from 8.56 lb/hr to $E = 4.10P^{0.67}$, which is the process weight-rate equation from 401 KAR 61:020.
- Compliance Demonstration Method 2.a. The Mass Emission Standard equation was revised as mentioned above for EP 08.
- The monitoring, recordkeeping, and reporting requirements were revised as mentioned above for EP 08.
- Specific recordkeeping requirement 5.f. was added.

Section B, EP 50 (A-15) Pulverizer Collection System.

- The particulate matter emission limit in paragraph 2.a. was changed from 8.56 lb/hr to $E = 4.10P^{0.67}$, which is the process weight-rate equation from 401 KAR 61:020.
- Compliance Demonstration Method 2.a. The Mass Emission Standard equation was revised as mentioned above for EP 08.
- The monitoring, recordkeeping, and reporting requirements were revised as mentioned above for EP 08.

Section B, EP 51 (C-09) A, B, & C Acid Wash Fines Packaging System.

- The particulate matter emission limit in paragraph 2.a. was changed from 4.10 lb/hr to $E = 4.10 \text{P}^{0.67}$, which is the process weight-rate equation from 401 KAR 61:020.
- Compliance Demonstration Method 2.a. The Mass Emission Standard equation was revised as mentioned above for EP 08.
- The monitoring, recordkeeping, and reporting requirements were revised as mentioned above for EP 08
- Specific recordkeeping requirement 5.f. was added.

Section B, EP 52 (F-01) Activated Carbon Fine Mesh Production.

• The particulate matter emission limit in paragraph 2.a. was changed from 5.52 lb/hr to E = 3.59P

- ^{0.62}, which is the process weight-rate equation from 401 KAR 59:010.
- Compliance Demonstration Method 2.a. The Mass Emission Standard equation was revised as mentioned above for EP 08.
- The monitoring, recordkeeping, and reporting requirements were revised as mentioned above for EP 08.

Section B, EP 53 (CAS-09) Reactivation Process for Custom Product.

- **502(B)10**: The operating limitation on the total weight of custom product reactivated was revised from 1.66 tons per hour to 2.50 tons per hour, and from 14,600 tons during any consecutive 12 months to 21,840 tons during any consecutive 12 months.
- The particulate matter emission limit in paragraph 2.a. was changed from 4.92 lb/hr to E = 3.59P 0.62, which is the process weight-rate equation from 401 KAR 59:010.

Section B, EP 53 (CAS-09) Reactivation Process for Custom Product. (continued)

- Compliance Demonstration Method 2.a. The Mass Emission Standard equation was revised as mentioned above for EP 08.
- The monitoring, recordkeeping, and reporting requirements were revised as mentioned above for EP 08.

Section I – Compliance Schedule

Two not-applicable paragraphs were deleted. See Revision 1 for a comparison.

Type of control and efficiency: (Added for this revision.)

EP 14, B-Line Activator #3 Scrubber

Type: Wet Scrubber

Model: TBD

Manufacturer: D.R. Technology Inc.

Scrubbing Liquid Flowrate: 750-950 gal/min Pressure Drop Across Unit: 8-12 in. of H₂O

Destruction Efficiency: ≥90%, based on modeling

Date constructed: 2004 (anticipated)

EP 21, C-Line Activators #5/#6 Scrubber

Type: Wet Scrubber

Model: TBD

Manufacturer: D.R. Technology Inc.

Scrubbing Liquid Flowrate: 1200-1400 gal/min Pressure Drop Across Unit: 8-12 in. of H₂O Destruction Efficiency: ≥90%, based on modeling

Date constructed: 2004 (anticipated)

Emission factors and their source:

A combination of AP-42 emission factors, material balance, site testing and modeled parameters have been used to estimate emissions in the application.

Applicable Regulations:

401 KAR 53:005, *General provisions* was applied to many of the points listed above in order to enforce the modeled SO₂ reductions and enforce NAAQS.

Anything unusual about the:

- 1) Emission point number and description. None.
- 2) Regulations that are not applicable. None.

EMISSION AND OPERATING CAPS DESCRIPTION:

See the summary above for descriptions by EP for this revision.

PERIODIC MONITORING:

See the permit for Specific Monitoring Requirements.

PUBLIC AND U.S. EPA REVIEW:

On November 25, 2003 the public notice on availability of the draft permit and supporting material for comments by persons affected by the plant was published in *The Independent* in Ashland, Kentucky. The public comment period expired 30 days from the date of publication. During this time no comments were received from the general public.

Comments were received from Calgon Carbon Corporation on December 24, 2003. Attachment A to this section lists the comments received and the Division's response to each comment. Minor changes were made to the permit as a result of the comments, however, in no case were any emission standards, or any monitoring, recordkeeping or reporting requirements relaxed. Please see Attachment A to Section III for a detailed explanation of the changes made to the permit.

Since comments were received from the facility during the public comment period, the permit now being issued is a proposed permit. U.S. EPA has 45 days from the date of issuance of the proposed permit to comment on it. If no comments are received from U.S. EPA during this period, the proposed permit shall become the final permit.

ATTACHMENT A TO SECTION III

Response to Comments

Comments and Suggested Revisions on the Draft Title V Permit Revision submitted by Sid Stephenson, Calgon Carbon Corporation.

1. Reference to Method 9 Monitoring during upset conditions:

This is a new permit condition that Calgon Carbon Corporation considers to be onerous. This will require training of over approximately 100 personnel to become certified for method 9 at an estimated cost of \$70,000 to \$100,000. Calgon Carbon Corporation believes that the same level of environmental protection can be achieved by implementing a Method 22 requirements [sic]. This is consistent with the requirements approved by USEPA and the State of Mississippi for an identical production facility in Pearlington, Mississippi. This Mississippi Title V Permit was issued in August 2003. Therefore, Calgon Carbon Corporation requests that the Method 9 monitoring requirements throughout the permit be changed to Method 22.

Division's response: The Division does not feel that this requirement is overly burdensome and has not revised the test method required by the permit. During normal operation of either the baghouses or scrubbers, depending on the exact point in question, there is no compliance demonstration method for opacity other than a weekly visual inspection. If there are no visible emissions noted during the weekly inspection, then a Method 9 reading is not required, and, as noted in the August 2003 inspection report conducted by Ashland Regional Office personnel, most of the baghouses will not produce visible emissions while in operation. The Method 9 reading is only required when visible emissions are observed during the weekly inspection, or during periods of control device malfunction while the associated unit is still running. This language is similar to that used in many other permits issued by the Division.

This requirement is to ensure compliance with the opacity standards outlined by the applicable regulations. The Division feels that Method 22 is not a suitable alternative to Method 9 for determining opacity. According to the descriptions of the test methods, Method 22 is applicable for the "...determination of the frequency of fugitive emissions from stationary sources," and for the "... determination of the frequency of visible smoke emissions from flares." Method 22 further states that, "This method does not require that the opacity of emissions be determined." Additionally, the Method 9 description specifically states that it is applicable for "... visually determining opacity of emissions." Therefore, the Division feels that, other than the use of a transmissometer, Method 9 is the only suitable method to determine opacity.

The Division feels that the permittee could accomplish these requirements by training a few key personnel per shift. As described above, a Method 9 reading is not required during each visual inspection, but only when visible emissions are observed or when a process unit is still operating during a control device malfunction. Also, as indicated by the inspection report, in most instances there are no visible emissions from the baghouses while they are functioning properly.

Regardless, the Division contacted Toby Cook of the Mississippi Department of Environmental Quality in order to confirm the Mississippi facility's Title V requirements. The only reference to Method 22 in the Mississippi facility's Title V permit is as a Quality Assurance/Quality Control measure to ensure personnel are "...trained on stack observation procedures..." No where does it

state that Method 22 is used in lieu of Method 9 to determine opacity.

As a result of preparing the response to this comment, the Division noted two items with the opacity compliance demonstration methods that required either clarification or correction. In order to clarify the compliance demonstration method during periods of normal control device operation, a phrase was added to reference the weekly visual inspection in paragraph 4.d. of each applicable emission point. Additionally, during periods of control device malfunction, numerous compliance demonstration method references were corrected to paragraph 5.c. instead of paragraph 5.d. of each applicable emission point. For Emission Point 45, the reference was changed to paragraph 5.e. instead of 5.d.

2. Section B, Emission Point 24, Page 30

Emission Point 24, Package Boiler, was shut down permanently in 2003 and Calgon Carbon Corporation requests that this emission point be removed from the permit. All references throughout the permit for this emission point should also be removed.

Division's response: The Division has revised the permit, as requested. Before restarting the Package Boiler (or installing a similar device) the permittee would have to submit a revision application, and, based on the type of revision required, receive a revised permit.

3. B-Line, Emission Point Number 14 and C-Line Emission Point Number 21, Section 7

The minimum flow rate for the wet scrubber and the total differential pressure for the wet scrubber should be consistent with that from the D-Line and E-Line activators. Calgon Carbon Corporation requests that the minimums be changed from 750 gpm to 350 gpm and from 8.0 to 6.0 inches of water on Emission Point Number 14 (B-Line Activators). Similarly, the minimums are requested to be changed on Emission Point Number 21 (C-Line Activator) 1200 gpm to 350 gpm and 8.0 to 6.0 inches of water.

In addition, Calgon Carbon Corporation requests that a statement be included such that the excursion definition does not apply to the minimum furnace afterburner temperature and scrubber differential pressure readings during initiation of activator feed to the furnaces of all four sets of activator furnaces (B, C, D, and E). Calgon Carbon Corporation requests the following text be added to the discussion of "excursion" in Section 7: "The minimum specified operating limit does not apply during initiation of activator feed to the furnace until the minimum operating conditions are met. An excursion for starting feed would occur after 3 hours from the time of time [sic] feed was initiated and the minimum operating conditions are not met."

Calgon Carbon requests that this condition be added for Section 7 on emission point 21 (C-Line Activators), Emission Points 34 (D-Line Activators) and emission point number 42 (E-Line Activators).

Division's response: The requested revisions to the minimum flow rate and differential pressure were not made. The specific control equipment operating conditions placed in the permit for the B and C-Line Activator wet scrubbers matches the information submitted on Form DEP7007N in the application for each control device. The Division, however, would consider revising the control equipment operating conditions if the performance testing required by Section G.d.5 indicates that 90% control efficiency for particulate matter and SO_2 can be achieved using those parameters.

Additionally, the excursion definitions for the minimum activator furnace afterburner

temperature and the minimum scrubber differential pressure readings were not modified. The Division understands that a portion of the activator's heat input is derived from combustion of carbon fines. As such there may be lag times between feed introduction and activator temperature, which may affect the afterburner temperature. The Division also understands that the process gas flow through the scrubber may decrease during periods of startup, shutdown, and malfunction, and result in differential pressure drops below the minimum parameter. It is assumed that because of that fact, the Division defined an excursion as having a 3-hour averaging period in the Title V permit (Permits F-95-005 and F-96-030 which first authorized installation and operation of the E and D-Line Activator scrubbers, respectively, and Permit O-94-020, Revision 1 simply set a baseline limit without an averaging period).

Since the main issue with obtaining the minimum control equipment operating conditions appear to be during periods of start-up, shutdown, and malfunction 401 KAR 50:055, General Compliance Requirements, was also referenced for a response to this comment. 401 KAR 50:055, Section 1(4)(d) states that a source shall be relieved from compliance with applicable standards during start-up, shutdown, or malfunction if "...the excess emissions are not part of a recurring pattern indicative of inadequate design, operation, or maintenance...." As such, the Division feels that loosening the specific control equipment operating parameters beyond the existing permit definition of an excursion would allow the permittee to circumvent this portion of the regulation.

Also, the issue with the lag time for reaching the required minimum afterburner temperature during introduction of feed to the activator furnaces was addressed in an inspection report issued on August 20, 2003, and the facility's response to the inspection report dated October 9, 2003. In that response letter, the facility indicated that they "...have initiated a plan to modify or install direct natural gas fired heating system [sic] in the afterburner of each activator which will eliminate this condition." The letter went on to say that the permittee "...anticipates that each of the activator afterburners will have the capability to reach the minimum temperature as defined in the Title V Air Quality Permit by November 30, 2003."